APPLICATION FOR HCAI PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY

APPLICATION #: OPM-0681

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: Modular Services Company

Manufacturer's Technical Representative: Sean Flanagan

Mailing Address: 500 E. Britton Rd., Oklahoma City, OK 73114

Telephone: (405) 521-9924 Email: sflanagan@modularservices.com

Product Information

Product Name: 7500 Series Semi-Recessed Form/Method/H-Core/Renew Headwall System Semi-Recessed Mount

Product Type: Hospital Headwall

Product Model Number: 7500

General Description: Headwall System

Applicant Information

Applicant Company Name: CYS Structural Engineers, Inc.

Contact Person: Dieter Siebald

Mailing Address: 2495 Natomas Park Drive; Suite 650, Sacramento, CA 95833

Telephone: (916) 920-2020 Email: dieters@cyseng.com

Title: Structural Project Manager

Registered Design Professonal Preparing Engineering Recommendations

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: Dieter Siebald California License Number: S4346

Mailing Address: 2495 Natomas Park Drive, Suite 650, Sacramento, CA 95833

Telephone: (916) 920-2020 Email: dieters@cyseng.com

HCAI Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP OSP Number:

Certification Method

Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-16

☐ Other(s) (Please Specify):

*Use of criteria other than those adopted by the California Building Standards Code, 2022 (CBSC 2022) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2022 may be used when approved by HCAI prior to testing.

☒ Analysis

☐ Experience Data

☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify):

HCAI Approval

Date: 10/21/2023

Name: William Staehlin Title: Senior Structural Engineer

Condition of Approval (if applicable):

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NOTES:

1. THESE DRAWINGS ARE PREPARED FOR MODULAR SERVICES COMPANY, OKLAHOMA CITY, OK.

2. THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE DEPARTMENT OF HEALTH CARE ACCESS & INFORMATION (HCAI) PRE-APPROVAL PROGRAMS WEBSITE.

3. THIS PRE-APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE HEADWALL TO THE SUPPORTING STRUCTURE. THE HEADWALL IS SUPPLIED BY THE MANUFACTURER. THE SCREWS, CONCRETE ANCHORS & SUPPORTING FRAMING SHOWN IN THIS OPM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.

4. NO COMPONENTS, CABINETS, SHELVES, ETC. SHALL BE SUPPORTED BY OR ATTACHED TO THE HEADWALL UNIT EXCEPT THOSE THAT MEET THE REQUIREMENTS OF THIS OPM & ARE ATTACHED TO THE MANUFACTURER PROVIDED CHANNELS NOTED IN THESE DRAWINGS.

5. ARCHITECTURAL & FIRE LIFE SAFETY CODE COMPLIANCES TO BE REVIEWED AT PROJECT SUBMITTAL. THIS OPM IS FOR STRUCTURAL REVIEW OF SUPPORT AND ATTACHMENT ONLY.

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: TABLE OF CONTENTS

CYS STRUCTURAL ENGINEERS, INC.
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TEL (916) 920-2020
www.cyseng.com

Job No:	23013
Date:	10-18-2023
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GENERAL NOTES:

1. THIS HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2022. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM MUST BE BASED ON CHAPTER 16A OF THE CBC 2022.
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR A SITE SPECIFIC PROJECT TO VERIFY:
   - A. THE ADEQUACY OF THE NEW OR (E) STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA HEADWALL IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
   - B. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE APPLICABLE PORTIONS OF CHAPTERS 16A, 17A, 19A & 22A IN THE CBC 2022 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
   - C. THAT THE ACTUAL HEADWALL'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DTLS, ATTACHMENT LOCATIONS, ATTACHMENT DETAILS, & THE MATERIAL & GA OF THE HEADWALL WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.
   - D. THAT THE PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES THAT DO NOT EXCEED THE VALUES PROVIDED IN THE DESIGN CRITERIA.
   - E. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
   - F. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE EXPANSION ANCHOR TABLE ON PG 3 IS THE REQ MIN SPCG OF THE GIVEN DIA ANCHORS. THE REQ SPCG FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
   - G. THAT THE CONC SLAB TO WHICH THE EQUIP IS ANCHORED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE ICC REPORT & THIS OPM.
3. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KB-TZ2 EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR-4266 REISSUED DECEMBER 2021 & REVISED MAY 2023.
   - A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE EXPANSION ANCHOR TABLE ON PG 3.
   - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE EXPANSION ANCHOR TABLE PROVIDED IN THIS DOCUMENT. TORQUE TEST 50% OF THE INSTALLED ANCHORS. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR & REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI. IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO EQUIP INSTALLATION, HOWEVER NUT SHALL BE RETORQUED TO INSTALLATION TORQUE AFTER EQUIPMENT INSTALL. ALSO REFER TO 2022 CBC 1910A.5 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE". REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI.
   - C. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
     - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS:
       WEDGE TYPE: ONE-HALF (½) TURN OF THE NUT.
   - D. AVOID DAMAGING (E) STL REINFORCEMENT IN CONC SLAB WHEN INSTALLING CONC EXPANSION ANCHORS.
   - E. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT & WASHER.

REGISTERED PROFESSIONAL ENGINEER DIETER T SIEBALD No. S4346 STRUCTURAL STATE OF CALIFORNIA

SHEET TITLE: GENERAL NOTES

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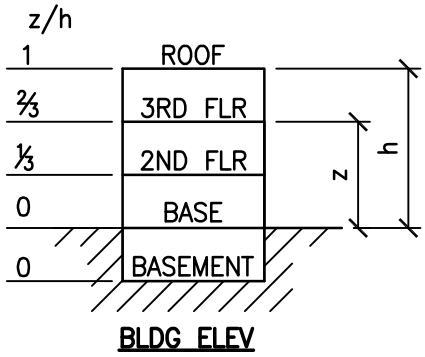
MODULAR SERVICES COMPANY

GENERAL NOTES CONTINUED:

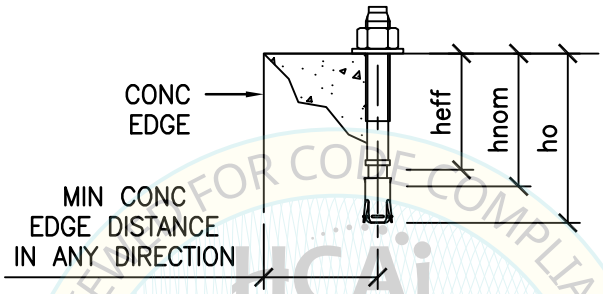
4. TWO (2) CASES OF ATTACHMENT ARE SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:



BLDG ELEV

CASE 1: ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3¼" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK (f'c= 3000 PSI MIN). ANCHORS SHALL BE CARBON STEEL & INTO CONC FILL

CASE 2: ATTACHMENT DETAILS LOCATE AT OR BLW THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB (f'c= 3000 PSI MIN). ANCHORS SHALL BE CARBON STEEL.



EXPANSION ANCHOR TABLE

CONDITION OF ANCHORAGE	ANCHOR DIA & TYPE (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TEST TORQUE (FT-LBS)
CASE 1	⅜ KB-TZ2	2 1/2	2	2¾	3¼	8	8	30
CASE 2	⅜ KB-TZ2	2 1/2	2	2¾	4	8	8	30

NOTE:
MIN CONC THK SPECIFIED IS THE CONC THK OVER THE MTL DECK.

5. SHEET METAL SCREWS SHALL BE HILTI SELF-DRILLING SCREWS PER ICC ESR-2196 REISSUED OCTOBER 2021 & REVISED JULY 2022 OR EQ.

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SHEET TITLE: GENERAL NOTES CONTINUED

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MODULAR SERVICES COMPANY

ABBREVIATIONS:

Ω_o	SEISMIC OVERSTRENGTH FACTOR
ABV	ABOVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	BUILDING
BLW	BELOW
BYD	BEYOND
CBC	CALIFORNIA BUILDING CODE
CG	CENTER OF GRAVITY
CLR	CLEAR
CONC	CONCRETE
DIA (ø)	DIAMETER
DL	DEAD LOAD
DTL	DETAIL
(E)	EXISTING
EA	EACH
ELEV	ELEVATION
Ev	VERTICAL SEISMIC DESIGN FORCE PER ASCE 7-16 SECTION 12.4.2.2 SEISMIC DESIGN FORCE REQUIREMENTS
EQ	EQUAL
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
FLG	FLANGE
FLR	FLOOR
Fp	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS
Fy	SPECIFIED MINIMUM YIELD STRESS OF STEEL
GA	GAUGE
HCAI	HEALTH CARE ACCESS & INFORMATION
HDR	HEADER
IN (")	INCH
INFO	INFORMATION
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MTL	METAL
NO. (#)	NUMBER OR POUNDS
NWC	NORMAL WEIGHT CONCRETE
OPM	HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION
PG	PAGE
REQ	REQUIRED
SEOR	STRUCTURAL ENGINEER OF RECORD
SLWC	SAND-LIGHTWEIGHT CONCRETE
SMS	SHEET METAL SCREW
SPCG	SPACING
STL	STEEL
THK	THICK/THICKNESS
Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
TYP	TYPICAL
Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
W/	WITH
Wp	OPERATING WEIGHT
WT	WEIGHT

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SHEET TITLE: ABBREVIATIONS

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DESIGN CRITERIA:

1. SUPPORT & ATTACHMENT DESIGN IS PER 2022 CBC AT LRFD LEVEL FORCES. THE FOLLOWING DESIGN CRITERIA IS APPLICABLE ONLY IN CALIFORNIA.

   OTHER RIGID COMPONENTS – LOW DEFORMABILITY ELEMENTS & ATTACHMENTS PER TABLE 13.6–1 OF ASCE 7–16 INCL SUPPLEMENT #1 & ERRATA:

   a_p = 1.0 R_p = 1.5 I_p = 1.5 Ω_0 = 1.5 (FOR CONC ANCHORS ONLY)
   W_P AS NOTED ON DRAWINGS

   UPPER FLRS ABV THE BASE OF BLDG
   CASE 1: $S_{DS} \leq 2.30$ $F_p = 2.76\ W_p$ $z/h \leq 1.00$

   FLRS AT OR BLW THE BASE OF BLDG
   CASE 2: $S_{DS} \leq 2.50$ $F_p = 1.125\ W_p$ $z/h = 0$

   LOAD COMBINATIONS
   $(1.2 + 0.2\ S_{DS})\ D + \Omega_0\ F_p$ (FOR CONCRETE ATTACHMENT)
   $(1.2 + 0.2\ S_{DS})\ D + F_p$ (FOR ALL OTHER ATTACHMENTS)

2. THIS PRE–APPROVAL MAY BE USED ONLY AT GEOGRAPHICAL LOCATIONS IN THE STATE OF CALIFORNIA WHERE S_{DS} & z/h IS LESS THAN OR EQ TO THE VALUES NOTED ABV. SEOR SHALL VERIFY THAT OTHER COMBINATIONS OF S_{DS} & z/h MUST RESULT IN AN Fp VALUE THAT IS EQ TO OR LESS THAN Fp FORCE FOR CASE UNDER CONSIDERATION.

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SHEET TITLE: DESIGN CRITERIAN & LOAD COMBINATIONS & HEADWALL UNIT WEIGHTS

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HEADWALL UNIT DIMENSIONS & WEIGHT (LBS)

# OF HEADWALL FRAMES	WIDTH, W (IN)	DEPTH, D (IN)	MAX HEIGHT, H (IN)	MAX WEIGHT, Wp (LBS)	CASE 1 MAX LINEAR LOAD AT HDR (LB/FT)	CASE 2 MAX LINEAR LOAD AT HDR (LB/FT)
1	12" MIN 36" MAX	5.5	130	450	775	351
2	24" MIN 72" MAX	5.5	130	900		
3	36" MIN 108" MAX	5.5	130	1350		
4	48" MIN 144" MAX	5.5	130	1800		

NOTES:
1. THE ABV TABLE PRESENTS THE OPERATING WEIGHTS (Wp) IN POUNDS & INCLUDES THE MAX WT OF ACCESSORIES TO BE MOUNTED ON THE MFR PROVIDED CHANNELS.
2. THE MAX WT SUPPORTED BY EA MONITOR CHANNEL IS 80 LBS.
3. THE MAX WT SUPPORTED BY EA ACCESSORY CHANNEL IS 40 LBS.
4. A HEADWALL UNIT CONSISTS OF MULTIPLE (ONE TO FOUR) HEADWALL FRAMES.
5. EA HEADWALL FRAME IS 12"–36" WIDE.
6. THE MAX LINEAR LOAD TO HDR IS FOR THE WORSE CASE LOADING & IS BASED ON THE MAX WT & MIN WIDTH OF THE HEADWALL FRAME. THESE FORCES ARE PROVIDED TO THE SEOR FOR REFERENCE ONLY. IT IS THE SEOR'S RESPONSIBILITY TO VERIFY THAT ALL SITE-SPECIFIC FORCES ARE ACCOUNTED FOR IN THE DESIGN IF THE HDR & ADJ FRMG USED FOR THE SUPPORT OF THE HEADWALL(S) UNDER CONSIDERATION.

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SHEET TITLE: HEADWALL UNIT WEIGHTS

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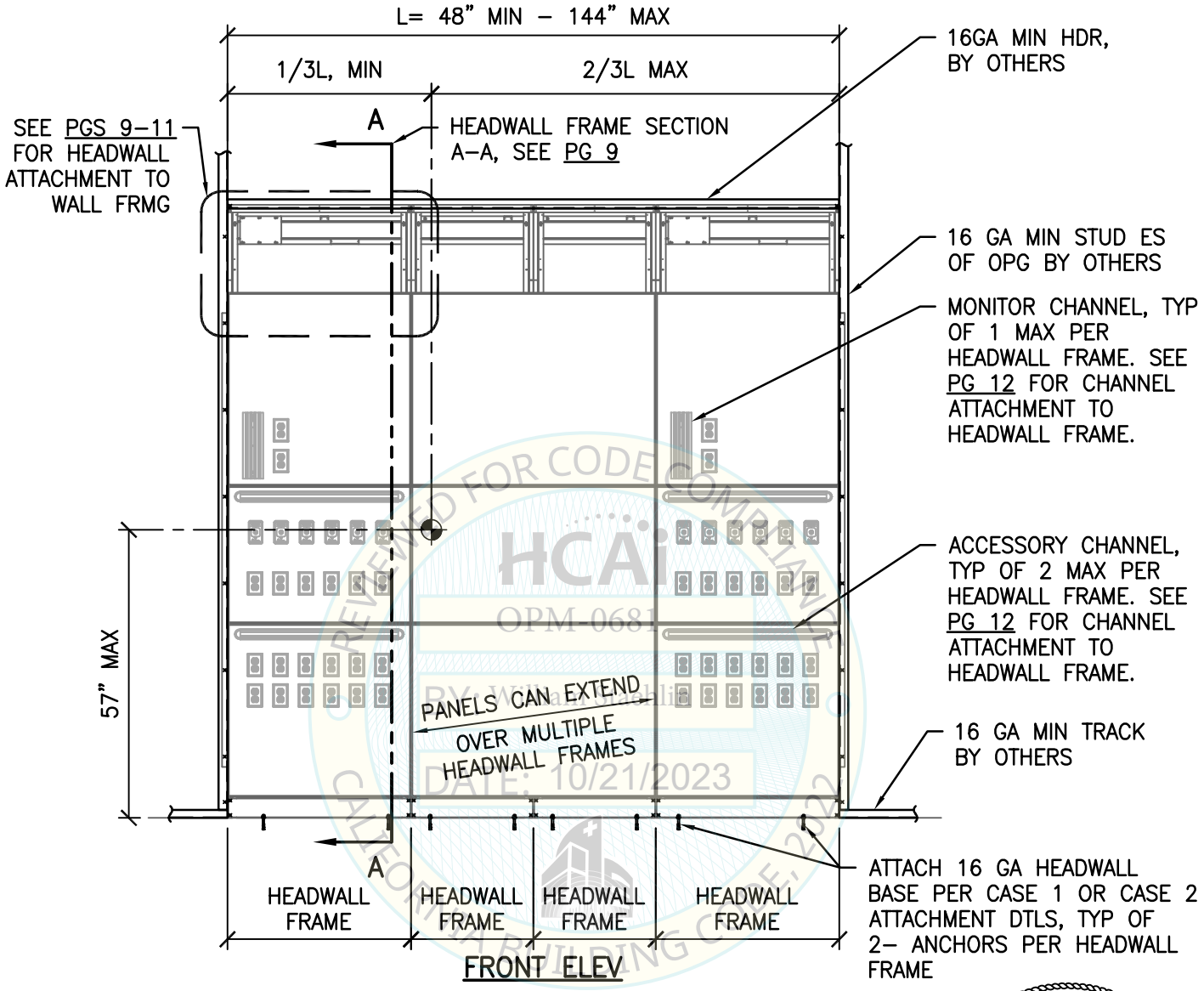
7500 SERIES SEMI-RECESSED FORM/METHOD/H-CORE/RENEW HEADWALL SYSTEM SEMI-RECESSED MOUNT

MODULAR SERVICES COMPANY



NOTES:

1. QTY & LOCATION OF MED GAS OUTLETS, ELECTRICAL RECEPTACLES, MONITOR CHANNELS & ACCESSORY CHANNELS MAY VARY. ITEMS SHOWN ON THIS ELEV IS A REPRESENTATION ONLY, UNO.
2. ITEMS MOUNTED TO ACCESSORY CHANNELS ARE MANUFACTURED BY MODULAR SERVICES COMPANY (MSC). ITEMS HAVE INDIVIDUAL LOAD RATINGS OF 25 LBS OR LESS & SHALL HAVE A COMBINED OP WT OF 40 LBS OR LESS PER CHANNEL.
3. ITEMS MOUNTED TO MONITOR CHANNELS ARE BY OTHERS & REQUIRE THEIR OWN MFR'S OPM. ITEMS SHALL HAVE A COMBINED OP WT MOMENT OF 80 FT–LBS OR LESS PER CHANNEL.

REGISTERED PROFESSIONAL ENGINEER
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SHEET TITLE: COMPONENT PLANS & ELEVATIONS
MULTIPLE HEADWALL FRAMES

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7500 SERIES SEMI-RECESSED FORM/METHOD/H-CORE/RENEW HEADWALL SYSTEM SEMI-RECESSED MOUNT

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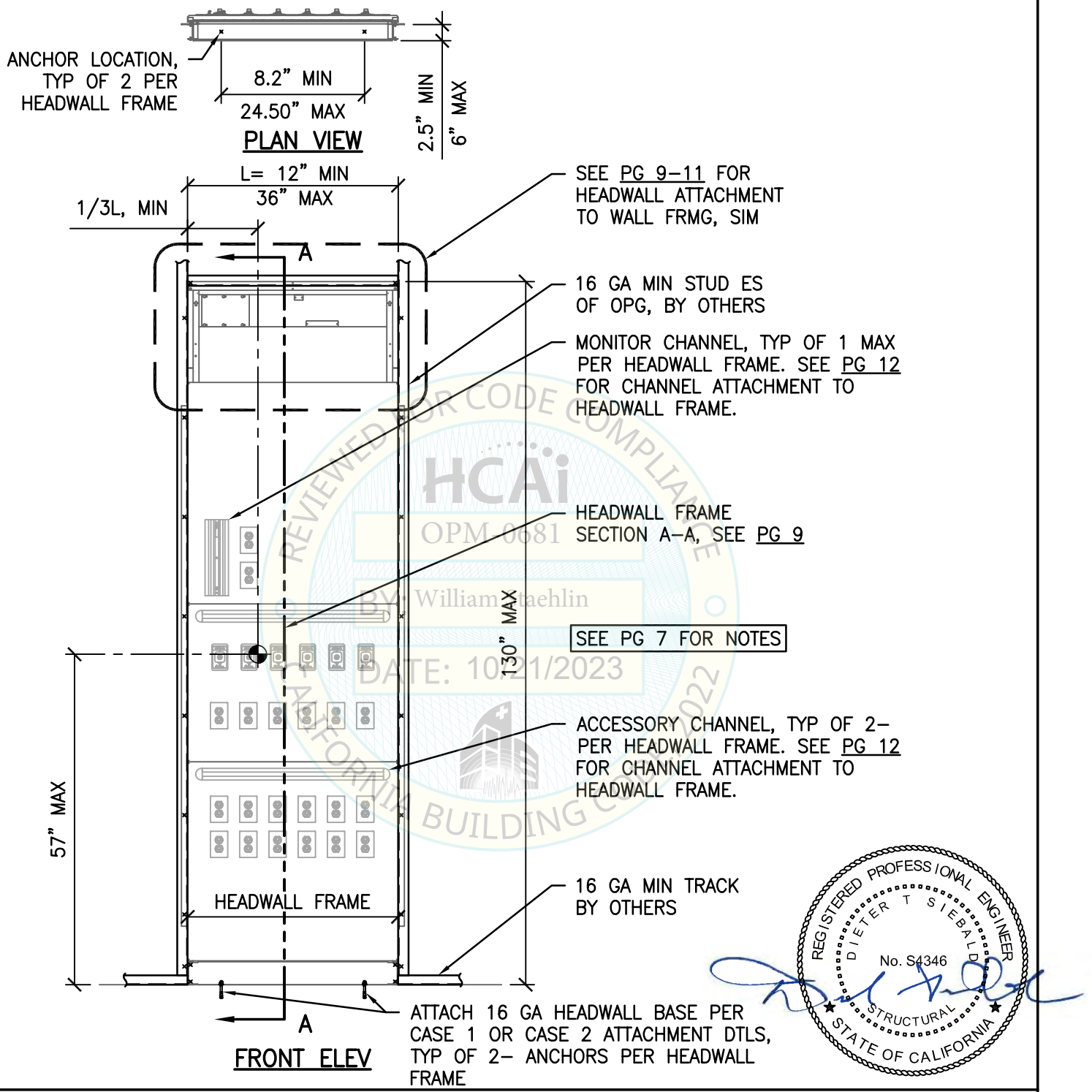

REGISTERED PROFESSIONAL ENGINEER DIETER T SIEBALD No. S4346 STRUCTURAL STATE OF CALIFORNIA

SHEET TITLE: COMPONENT PLANS & ELEVATIONS
SINGLE HEADWALL FRAME

CYS STRUCTURAL ENGINEERS, INC.
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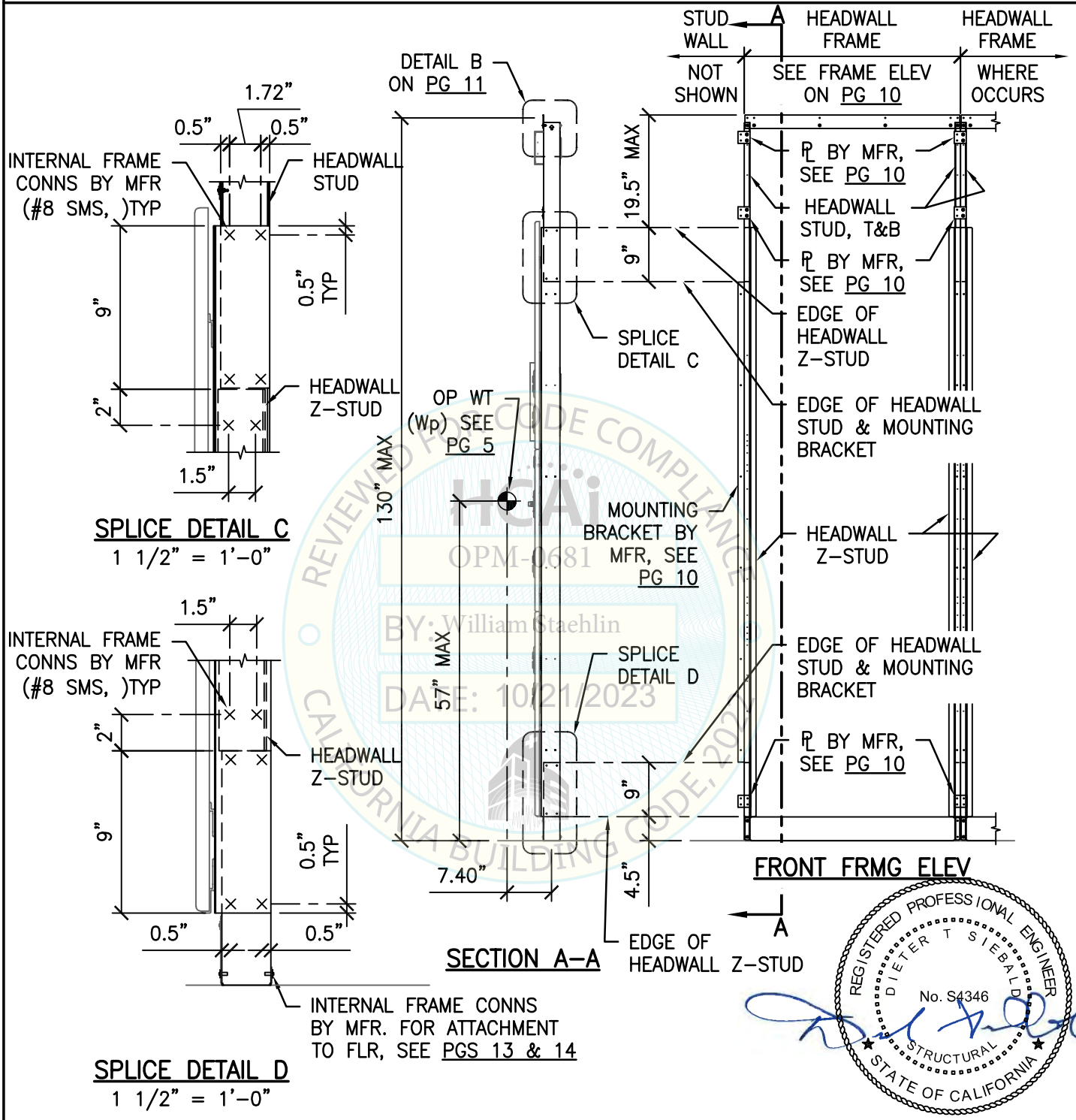

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SHEET TITLE: HEADWALL FRAME SECTION & WALL ATTACHMENT DETAILS

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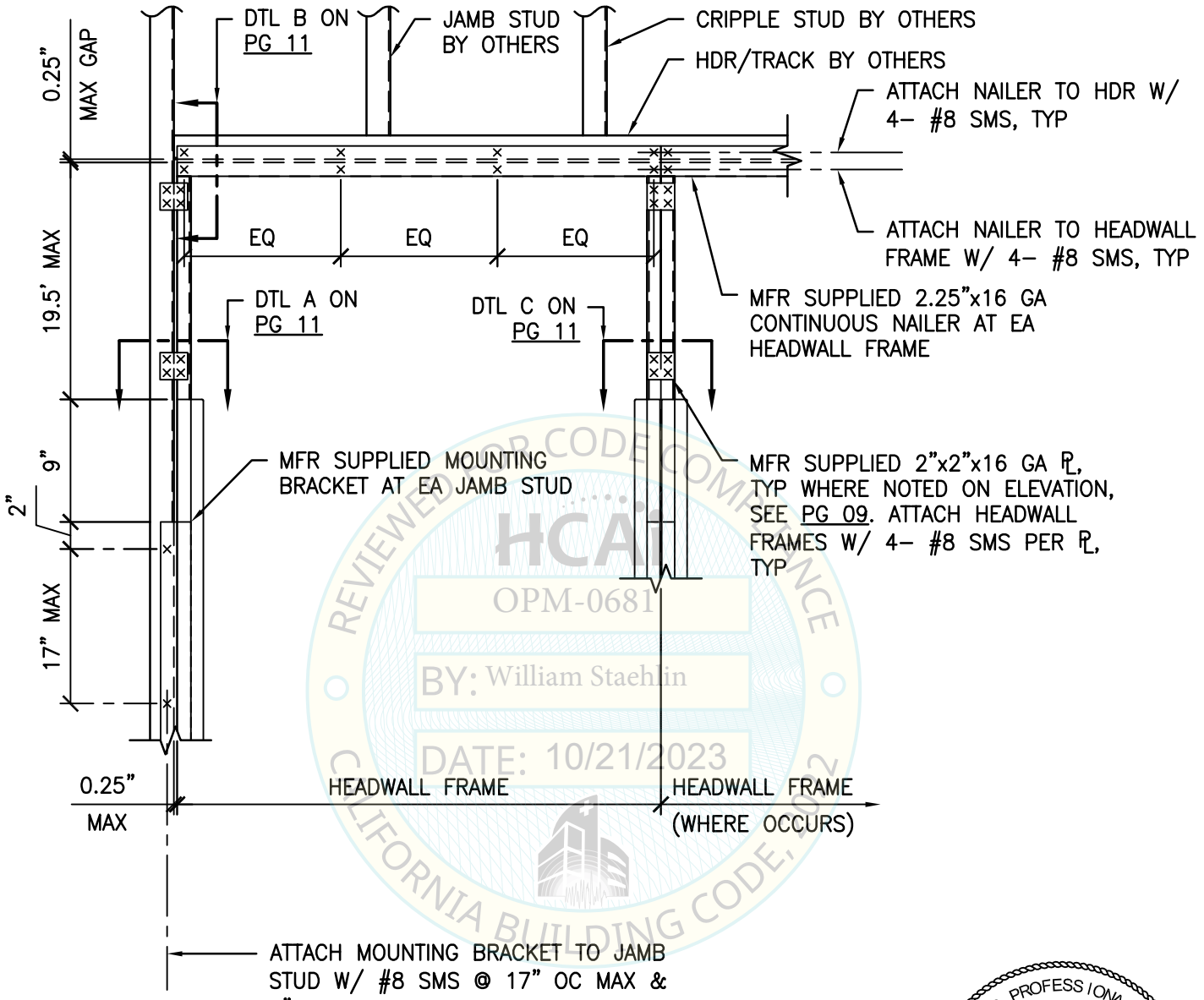

HEADWALL FRAME & NAILER MATERIAL:
ASTM A653, A16 GA OR 12 GA WHERE NOTED

REGISTERED PROFESSIONAL ENGINEER
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SHEET TITLE: HEADWALL FRAME TO STUD WALL ATTACHMENT DETAILS

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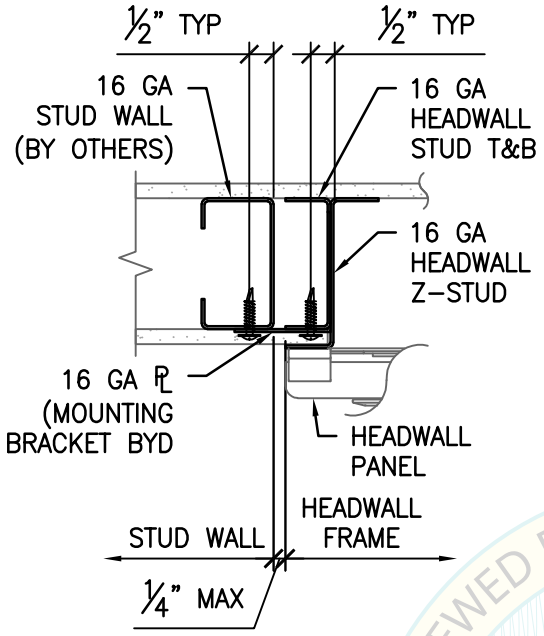
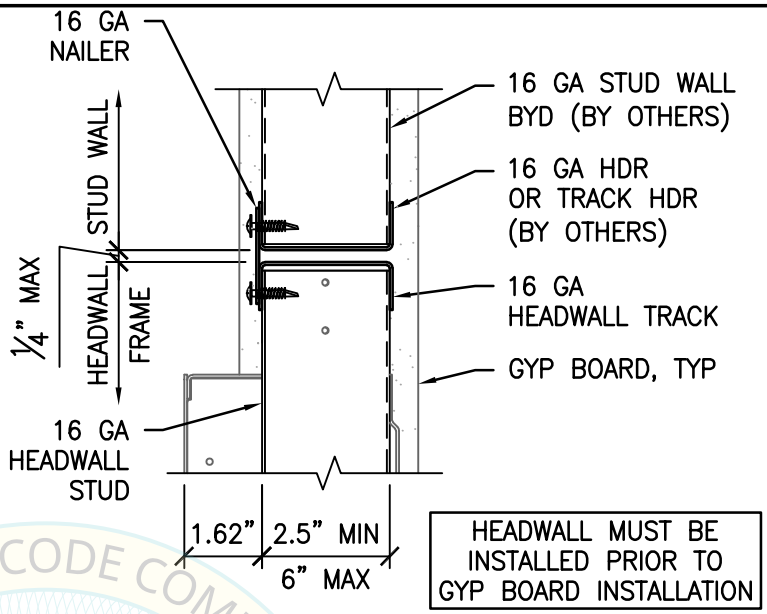
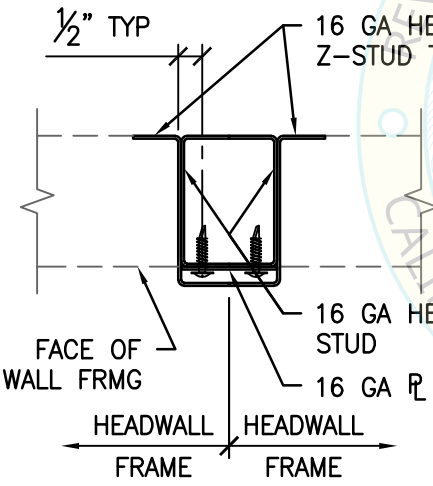


DETAIL A

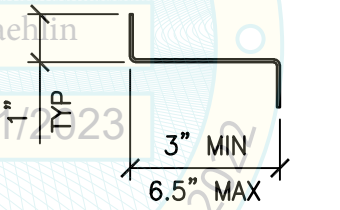


DETAIL B

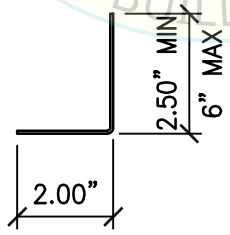
HEADWALL MUST BE INSTALLED PRIOR TO GYP BOARD INSTALLATION



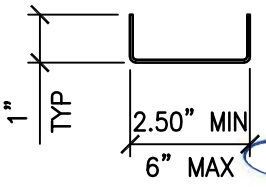
DETAIL C



16 GA HEADWALL Z–STUD DIMS



16 GA MOUNTING BRACKET DIMS



16 GA HEADWALL STUD DIMS

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SHEET TITLE: HEADWALL FRAME TO STUD WALL ATTACHMENT DETAILS

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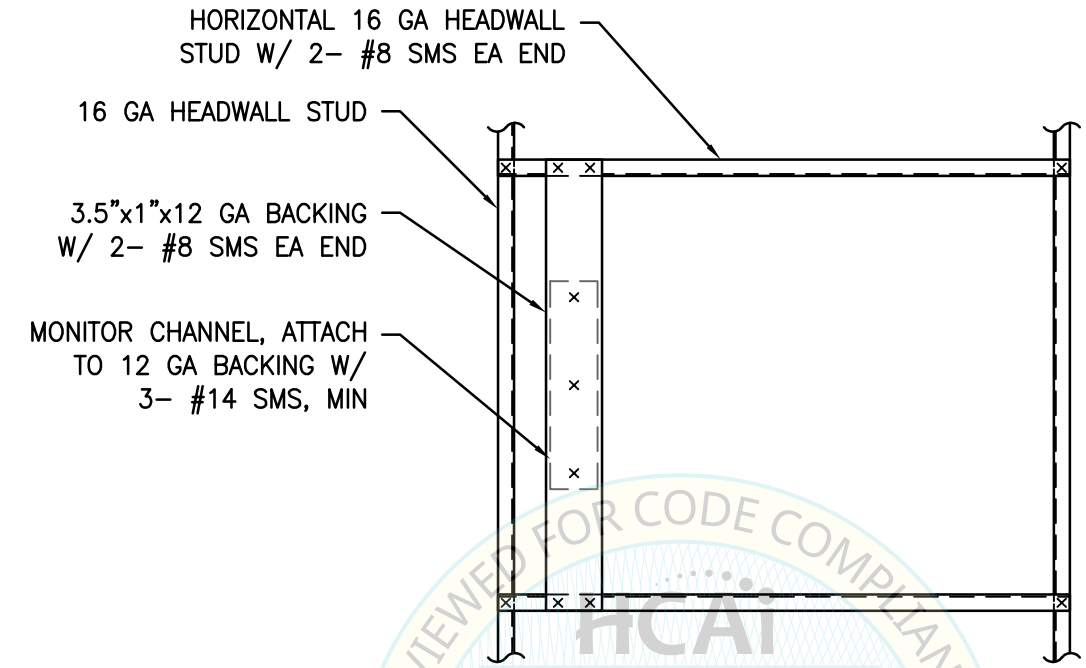
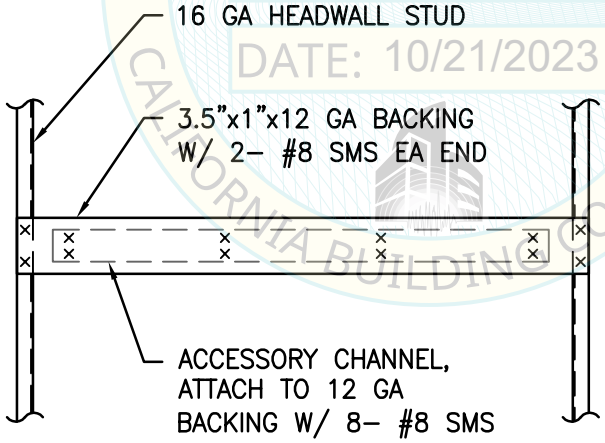
7500 SERIES SEMI-RECESSED FORM/METHOD/H-CORE/RENEW HEADWALL SYSTEM SEMI-RECESSED MOUNT

MODULAR SERVICES COMPANY

MONITOR CHANNEL ATTACHMENT DETAIL



ACCESSORY CHANNEL ATTACHMENT DETAIL



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SHEET TITLE: CHANNEL ATTACHMENT DETAILS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL (916) 920-2020
www.cyseng.com

Job No:	23013
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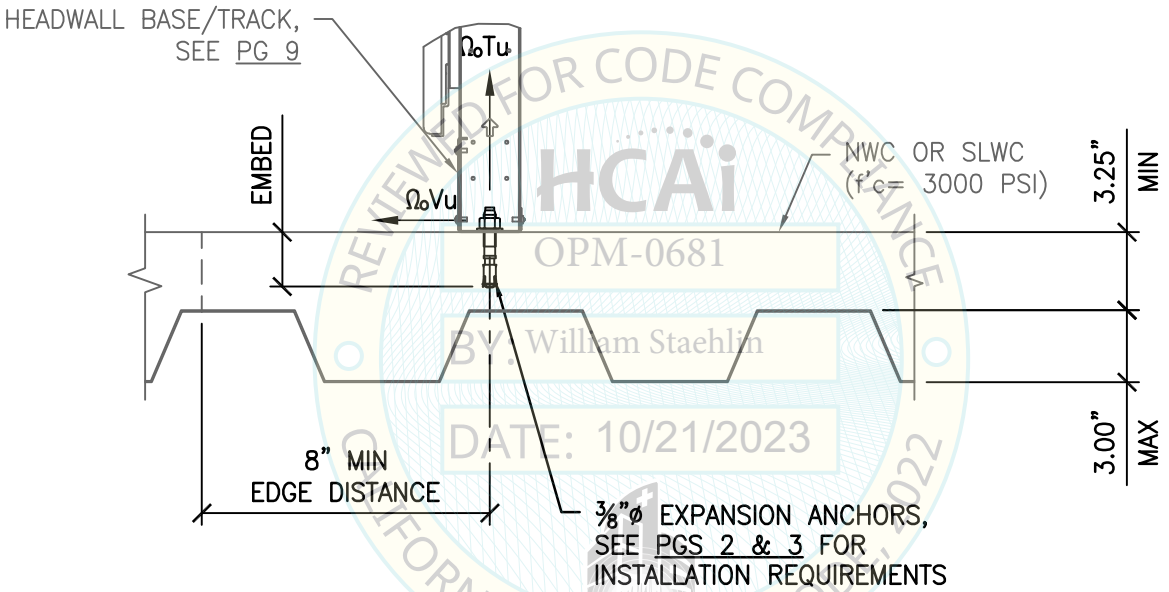
7500 SERIES SEMI-RECESSED FORM/METHOD/H-CORE/RENEW HEADWALL SYSTEM SEMI-RECESSED MOUNT

MODULAR SERVICES COMPANY

	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 1	0	947#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED.



SUSPENDED FLR (CASE 1)

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: ATTACHMENT DETAILS
CONCRETE FILL OVER METAL DECK (CASE 1)

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
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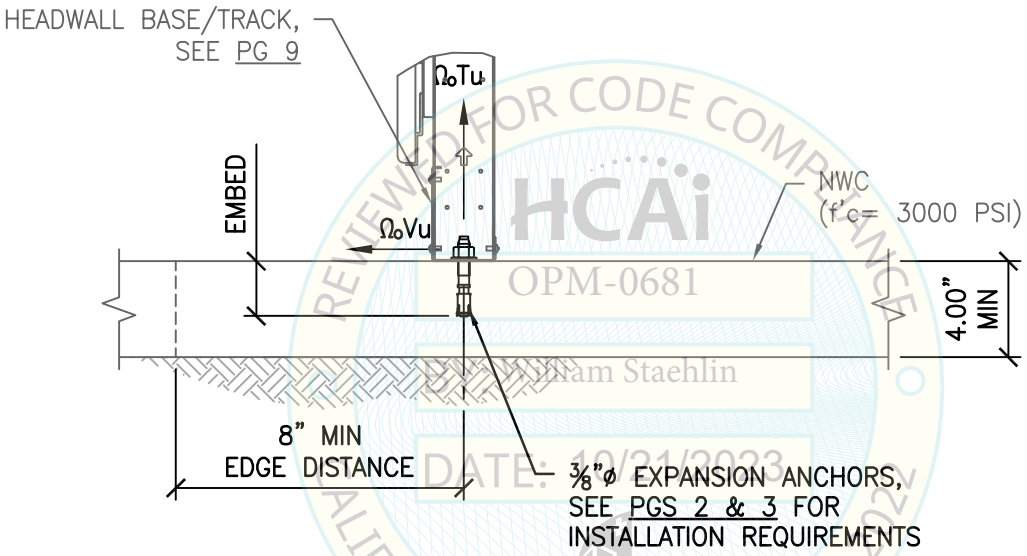
C:\Users\camachom\appdata\local\temp\AcPublish_12136\S1_Modular Services.dwg Time:Oct18,2023–03:37pm Login:camachom Dimscale:1 LTScale:6

7500 SERIES SEMI-RECESSED FORM/METHOD/H-CORE/RENEW HEADWALL SYSTEM SEMI-RECESSED MOUNT

MODULAR SERVICES COMPANY

	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 2	0	409#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED.



SLAB ON GRADE (CASE 2)

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: ATTACHMENT DETAILS
CONCRETE FILL OVER METAL DECK (CASE 1)

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